

I. REMARKS

As an initial matter, Applicants gratefully acknowledge that the non-final Office Action mailed November 15, 2007 replaces the incomplete Office Action of October 26, 2007 (Office Action, mailed November 15, 2007, at 2, lines 3-5). Therefore, Applicants respond only to the November 15th Office Action.

Claims 14-32 are pending. Claims 30 and 32 have been withdrawn because they pertain to non-elected subject matter. Applicants respectfully request that claim 32 be rejoined with the base claim once it has been allowed because claim 32 incorporates all of the subject matter of the generic base claim 14.

A. The Invention

The present invention pertains broadly to a display cell such as may be used as a display device for an electronic device. In accordance with an embodiment of the present invention, an electro-optical display cell is provided that includes features recited by independent claim 14. In accordance with another embodiment of the present invention, a multi-layered liquid crystal display cell is provided that includes features recited by independent claim 21. Various other embodiments, in accordance with the present invention, are recited by the dependent claims.

An advantage provided by the display cell embodiments of the present invention is that these devices include conductive paths that are reliably formed and that exhibit good electrical conductivity even in places where they match the back edge of the cell.

B. The Rejections

Claims 14-17, 19, 20 and 31 stand rejected under 35 U.S.C. § 102(b) as anticipated by Atsushi (JP Document No. 56-075,624, hereafter the “Atsushi Document”). Claims 21, 23

and 25 stand rejected under 35 U.S.C. § 102(e) as anticipated by Mandai et al. (U.S. Patent Application Publication No. 2001/0015788, hereafter the “Mandai Publication”).

Claim 18 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the Atsushi Document in view of Kozuka et al. (U.S. Patent Application Publication No. 2001/0046021, hereafter the “Kozuka Publication”). Claim 22, 24 and 26 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the Atsushi Document in view of Kuroki et al. (U.S. Patent Application Publication No. 2002/0051102, hereafter the “Kuroki Publication”). Claim 27 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the Mandai Publication in view of the Kuroki Publication. Claim 28 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the Atsushi Document in view of Wada (U.S. Patent Application Publication No. 2002/0019069, hereafter the “Wada Publication”). Claim 29 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the Mandai Publication in view of the Wada Publication.

Applicants respectfully traverse the Examiner’s rejections and request reconsideration of the above-captioned application for the following reasons.

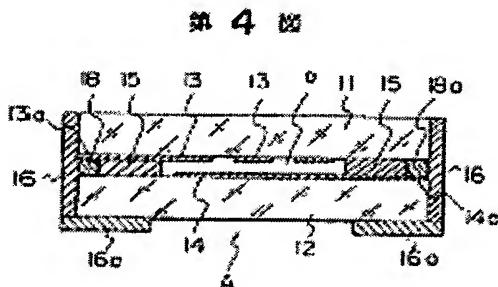
C. Applicants’ Arguments

i. The Section 102 Rejection

Anticipation under 35 U.S.C. § 102 requires showing the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claims. Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984). In this case, the Examiner has failed to establish a prima facie case of anticipation against the claimed invention because both the Atsushi Document and the Mandai Publication fail to teach each and every limitation as arranged as in the claims.

ii. The Atsushi Document

The Atsushi Document discloses “production of photoelectric display cell” wherein the photoelectric display cell, as shown in Figure 4 (reproduced below for convenience), includes base plates (11) and (12), sealing material (15) printed and dried on the lower peripheral portion of base plate (11) without applying sealing material to liquid crystal inlet (17), and conductive paste layers (18) and (18a) printed on the opposed portion between the upper portion of lead terminal (13a) of segment electrode (13) and lead wire (14a) of common electrode (14) on the lower base plate (12) so as to have the same thickness as sealing material (15), (See Patent Abstracts of Japan, of record, corresponding to the Atsushi Document). As shown in Figure 4, both base plates (11) and (12) are connected to form cell vessel (A), and conductive paste (16) is printed and dried in the same width as conductive paste layers (18) and (18a) in order to prevent conductive paste layers (18), (18a) and (16) from short circuiting between adjoining layers and defective connection of lead wires (See Patent Abstracts of Japan corresponding to the Atsushi Document).



More specifically, the Atsushi Document discloses, according to Figure 4, at least one transparent front substrate (11) whose top surface forms the front face of the cell, and at least one back substrate (12) that may also be transparent or not, and whose lower surface forms the back face of the cell. The Atsushi Document also discloses that a sealing frame (15) is provided to join the front and back plates (11), (12) and that defines a volume for retaining an

electro-optically or photo-electrically active medium in a sealed manner (i.e., liquid crystal (A)). The Atsushi Document discloses that the front and back substrates (11) and (12) include on their faces, opposing each other, at least one electrode (13), (14) that are intended to be connected by the conductive paste (16) to an electrical power or control circuit and that define lateral electric contact zones. The Atsushi Document discloses that each conductive path (16) is formed of a first part (i.e., see “16” in Figure 4) in contact with the electrodes at the level of the lateral electric contact zones, and a second part (i.e., see “16a” in Figure 4) shown extending over the back surface of the cell.

However, the Atsushi Document does not teach, or suggest, that the conductive paste layers (18a) shown in Figure 4 are arranged continuously or discontinuously over the edge, or the back, or the edge and the back, of the cell thereby forming the electrical junction between the first and second parts of the conductive paths. Thus, the Atsushi Document does not teach, or even suggest, “contact means arranged continuously or discontinuously over the edge, or the back, or the edge and the back, of said cell forming the electrical junction between the first and second parts of the conductive paths” as recited by independent claims 14 and 21.

On the contrary, the Atsushi Document discloses that “contact means” (18a), as shown in Figure 4, are disposed between the front and back base plates (11) and (12). The present invention as recited by independent claims 14 and 21, however, require that the “contact means” be arranged over the edge and/or the lower surface of the back substrate forming the back face of the cell. For a non-limiting example, Applicants direct the Examiner’s attention to Figure 5 of Applicants’ disclosure, which illustrates a “contact means” (42) arranged on the “edge” (27) and/or lower surface (31) of the back substrate (22) forming the back face of the cell (18).

Applicants further contend that the “first part” of the conductive paths, as recited in independent claim 14 of the present application, is in contact with the electrodes at the level of the “lateral electric contact zones,” (See, e.g., the non-limiting example illustrated by Figure 5 of the above-captioned application wherein the “first part” (30a, 34a) of the conductive paths (30, 34) is in contact with the electrodes at the level of the “lateral electric contact zones” (32)), and corresponds to the portion of the conductive path labeled “16” in Figure 4 of the Atsushi Document. Applicants also contend that the “second part” of the conductive paths, as recited in independent claim 14 of the present application, extends over the back surface of the cell, (See, e.g., the non-limiting example illustrated by Figure 5 of the above-captioned application wherein the “second part” (30b, 34b) of the conductive paths (30, 34) extends over the back surface (31) of the cell (18)), and corresponds to the portion of the conductive path labeled “16a” in Figure 4 of the Atsushi Document. Consequently, a person of ordinary skill in the art would instantly realize that the “contact means” (18a) disclosed by Atsushi do not form the “electrical junction” between the first part (16) and the second part (16a) of the conductive paths.

A person of ordinary skill in the art would understand from the disclosure of the Atsushi Document that the only role played by “contact means” (18a), according to Atsushi, is to increase the area of the lateral electric contact zone formed by electrode (14). In fact, the thickness of this lateral electric contact zone, as illustrated by Figure 4 of Atsushi, corresponds to the thickness of the electrode (14) and the contact means (18a) so that the electric contact between electrode (14) and the first part (16) of the conductive path is improved.

A person of ordinary skill in the art would also understand from the disclosure of the Atsushi Document that the cell disclosed by Atsushi has the disadvantage described on page 3, lines 9-16, of Applicants’ specification. Specifically, the first part (16) and second part

(16a) of the conductive paths deposited around the sharp back edge of the cell are thin, and therefore have low mechanical strength. As a consequence of this thin structure deposited around the sharp back edge, the conductive paths are easily scratched and interrupted thereby compromising electrical conduction continuity and reliability.

For all of the above reasons, the Atsushi Document does not teach, or suggest,

“the conductive paths are each formed of a first part in contact with the electrodes at the level of the lateral electric contact zones, and a second part extending over the back surface of the cell, contact means arranged continuously or discontinuously over the edge, or the back, or the edge and the back, of said cell forming the electrical junction between the first and second parts of the conductive paths”

as recited by independent claims 14 and 21. Therefore, the Atsushi Document cannot anticipate the subject matter of independent claims 14 and 21.

iii. The Mandai Publication

The Mandai Publication discloses a “displaying system for displaying information on a display,” which pertains to a liquid crystal display that includes first and second substrates (8), (10) wherein the first substrate (8) has a surface supporting thereon a plurality of parallel first electrodes (12) and the second substrate (10) has a first surface and second surface opposed to the first surface (See Abstract of the Mandai Publication, and Figures 1 and 2).

The Mandai Publication discloses that the first surface supports thereon a plurality of parallel second electrodes (14), wherein the second substrate (10) is positioned so that the first surface opposes the surface of the first substrate to define a gap therebetween and the first and second electrodes cross with each other (See Abstract of the Mandai Publication, and Figure 2). The Mandai Publication further discloses that a memory type liquid crystal (18) is filled in the gap as shown in Figure 4B, and a plurality of first and second terminals are positioned on the second surface and electrically connected with the first and second

electrodes, respectively, so that the first and second terminals are capable of being connected with an external device (See Abstract of the Mandai Publication and ¶ [0052]).

With reference to Figures 4B and 4C of the Mandai Publication, a person of ordinary skill in the art would instantly appreciate that the structure the Examiner contends is the “first part of the conductive path” and the structure the Examiner contends is the “second part of the conductive path” (See, Office Action, dated November 15, 2007, at 6) are integrally formed (i.e., are the same component) so that there is no “contact means...forming the electrical junction between the first and second parts of the conductive paths” as recited by independent claim 21. However, this is not the only deficiency in the disclosure of the Mandai Publication.

The Mandai Publication also does not teach, or even suggest, “contact means arranged...over the edge, or the back, or the edge and the back, of said cell” as recited by independent claim 21. Furthermore, the Mandai Publication does not teach, or suggest, “the conductive paths are each formed of a first part in contact with the electrodes at the level of the lateral electric contact zones” as recited by claim 21.

For all of the above reasons, the Mandai Publication does not teach, or suggest,

“the conductive paths are each formed of a first part in contact with the electrodes at the level of the lateral electric contact zones, and a second part extending over the back surface of the cell, contact means arranged continuously or discontinuously over the edge, or the back, or the edge and the back, of said cell forming the electrical junction between the first and second parts of the conductive paths”

as recited by independent claims 14 and 21. Therefore, the Mandai Publication cannot anticipate the subject matter of independent claims 14 and 21.

iv. The Section 103 Rejections

A prima facie case of obviousness requires a showing that the scope and content of the prior art teaches each and every element of the claimed invention, and that the prior art

provides some teaching, suggestion or motivation, or other reason, for combining the references in the manner claimed. KSR International Co. v. Teleflex Inc., 127 S.Ct. 1727, 1739-41 (2007); In re Oetiker, 24 U.S.P.Q.2d 1443 (Fed. Cir. 1992). In this case, the Examiner has failed to establish a prima facie case of obviousness against the claimed invention because neither the Atsushi Document, the Mandai Publication, the Kozuka Publication, the Kuroki Publication, nor the Wada Publication, either alone or in combination, teaches or suggests “the conductive paths are each formed of a first part in contact with the electrodes at the level of the lateral electric contact zones, and a second part extending over the back surface of the cell, contact means arranged continuously or discontinuously over the edge, or the back, or the edge and the back, of said cell forming the electrical junction between the first and second parts of the conductive paths” as recited by independent claims 14 and 21.

v. The Atsushi Document

The disclosure of the Atsushi Document is discussed above. As admitted by the Examiner (Office Action, dated November 15, 2008, at 7, lines 14-15; at 8, lines 6-7; and at 9, lines 10-12), the Atsushi Document does not teach, or suggest, (i) “the contact means take the form of a tape of anisotropic conductive material” as recited by claim 18; (ii) “a power circuit or the control circuit is mounted on the back of the cell” as recited by claims 22, 24, 26 and 27; and (iii) “a transparent or coloured absorbent layer for relaxing thermo-mechanical stresses and able to resist a chemical etch bath is deposited on the back of the cell” as recited by claims 29 and 30.

vi. The Mandai Publication

The disclosure of the Mandai Publication is discussed above. As admitted by the Examiner (Office Action, dated November 15, 2008, at 8, lines 17-18; and at 10, lines 2-4),

the Mandai Publication does not teach, or suggest, (i) “a power circuit or the control circuit is mounted on the back of the cell” as recited by claim 27; and (ii) “a transparent or coloured absorbent layer for relaxing thermo-mechanical stresses and able to resist a chemical etch bath is deposited on the back of the cell” as recited by claim 29.

vii. The Kozuka Publication

The Kozuka Publication discloses a “conductive particle to conductively bond conductive members to each other, an anisotropic adhesive containing the conductive particle, a liquid crystal display device using the anisotropic conductive adhesive, [and] a method for manufacturing the liquid crystal display device” (See Abstract of the Kozuka Publication).

viii. The Kuroki Publication

The Kuroki Publication discloses a “display device, manufacturing method thereof and image terminal unit employing the same” (See Abstract of the Kuroki Publication).

ix. The Wada Publication

The Wada Publication discloses an “optical element and method of manufacturing the same, and electronic instrument” (See Abstract of the Wada Publication).

x. Summary of the Disclosures

The Atsushi Document, the Mandai Publication, the Kozuka Publication, the Kuroki Publication, and the Wada Publication, either alone or in combination, still fail to teach, or even suggest,

“the conductive paths are each formed of a first part in contact with the electrodes at the level of the lateral electric contact zones, and a second part

extending over the back surface of the cell, contact means arranged continuously or discontinuously over the edge, or the back, or the edge and the back, of said cell forming the electrical junction between the first and second parts of the conductive paths"

as recited by independent claims 14 and 21. Therefore, the Examiner has failed to establish a prima facie case of obviousness against the subject matter of independent claims 14 and 21 and the dependent claims.

II. CONCLUSION

The Examiner has failed to establish either a prima facie case of anticipation, or of obviousness, against claims 14-29, 31 and 32 because the Atsushi Document, the Mandai Publication, the Kozuka Publication, the Kuroki Publication, and the Wada Publication, either alone or in combination, still fail to teach, or even suggest, each and every limitation of the claims arranged as in the claims.

For all of the above reasons, claims 14-29, 31 and 32 are in condition for allowance and a prompt notice of allowance is earnestly solicited. Furthermore, while claim 32 pertains to subject matter of a non-elected species, claim 32 should be rejoined with generic claim 14.

Questions are welcomed by the below-signed attorney for Applicants.

Respectfully submitted,

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